DETAILED ACTION

1. Claims 1—32 are subject to examination. Claims 1-7, 10-13, 19-21 and 26 are cancelled.

Response to Arguments

2. Applicant's arguments with respect to amended claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 8, 9 and 14-18, 22-25 and 27-32 are rejected under 35 U.S.C. 103(a) as being Unpatentable over Traversat et al. (hereinafter Traversat) (US 2002/0184357 A1). in view of Periasamy et al. (hereinafter Periasamy)(US 6, 065, 062)

Referring to claim 8,

Traversat teaches a communication network (Fig. 1B) comprising:

a plurality of communication components (para. [0026], "A peer-to-peer network may include a plurality of peer nodes. Each peer node may comprise a network node that may be configured to communicate with other peer nodes over the peer-to-peer network. The peer-to-peer network may also include one or more rendezvous nodes. Each rendezvous node may cache one or more resource advertisements for discovery by the peer nodes on the peer-to-peer network. Each resource advertisement may

include an indication of how to access a corresponding network resource. Network resources may include, but are not limited to, peers, peer groups, services, content, pipes and pipe endpoints. The resource advertisements may be formatted according to a peer-to-peer platform discovery protocol."), at least some of which comprise both client and server functionalities (para. [0027], "Rendezvous nodes preferably cache information that may be useful to peer nodes including new peer nodes. Rendezvous nodes may provide an efficient mechanism for isolated peer nodes to discover network resources and may make peer node discovery more practical and efficient. In one embodiment, peer nodes may become rendezvous nodes. Peer nodes may elect themselves, through the discovery protocol, to become rendezvous nodes. Alternatively, peer nodes may be appointed rendezvous nodes by their peer groups. Preferably, a peer group is not required to have a rendezvous node. In one embodiment, any members of a peer group may become rendezvous nodes in a peer group."), at least some of the client functionalities including a search function that ascertains network addresses of others of the communication components that allow the server functionalities of the others to be used (para. [0031], "The rendezvous node may not currently have advertisements cached that satisfy the discovery query message. In this case, in one embodiment, the rendezvous node may broadcast a discovery query message on the peer-to-peer network to discovery advertisements satisfying the peer node's discovery query message. In another embodiment, the rendezvous node may forward the discovery query message to one or more other rendezvous nodes on the peer-to-peer network. Alternatively, the rendezvous node

may forward the discovery query message to one or more rendezvous nodes specializing in caching advertisements on a particular topic specified by discovery query message. The one or more other rendezvous nodes may respond with one or more response messages including advertisements of the type specified by the discovery query message. The rendezvous node may cache the advertisements in the response messages. The rendezvous node and the other responding rendezvous node may provide route discovery for the resources advertised in the response message. The rendezvous nodes may include route information in the response message. The rendezvous node may forward the one or more response messages to the peer node.", para.[0029] In one embodiment, peer nodes may discover advertisements using a rendezvous node. For example, a peer node may broadcast discovery query message. Discovery query message may be formatted in accordance with a peer-to-peer platform discovery protocol. The discovery query message may include criteria specifying a particular type of network resource in which the peer node is interested. The discovery query message may include a security credential. The rendezvous nodes receiving the discovery query message may use the security credential to authenticate the sender. The discovery query message may also include the TTL as described above.", para. [0082], "A peer group may theoretically be as large as the entire connected universe. Naming anything uniquely is a challenge in such a large namespace. In one embodiment, the peer-to-peer platform may support and/or provide sophisticated naming and binding services. In one embodiment, the peer-to-peer platform may use a universal unique identifier (UUID), for example, a 64- or 128-bit datum, to refer to an

entity (e.g. a peer, peer group, pipe, content, etc.). For example, UUIDs may be embedded in advertisements for internal use. UUIDs preferably may be used to guarantee that each entity has a unique UUID within a local runtime environment and serves as a canonical way of referring to an entity, but because a global state is not assumed, it may not be possible to provide a guarantee of uniqueness across an entire community that may consist of millions of peers. This may not be a problem because a UUID may be used within the peer-to-peer platform as an internal identifier. This may become significant only after the UUID is securely bound to other information such as a name and a network address. In one embodiment, Uniform Resource Name (URN) format may be used for the expression of UUIDs.");

a retrieval mechanism in said at least some of the client functionalities that obtains information about the server functionalities of said other communication components (para.[0031], "[0031] The rendezvous node may not currently have advertisements cached that satisfy the discovery query message. In this case, in one embodiment, the rendezvous node may broadcast a discovery query message on the peer-to-peer network to discovery advertisements satisfying the peer node's discovery query message. In another embodiment, the rendezvous node may forward the discovery query message to one or more other rendezvous nodes on the peer-to-peer network. Alternatively, the rendezvous node may forward the discovery query message to one or more rendezvous nodes specializing in caching advertisements on a particular topic specified by discovery query message. The one or more other rendezvous nodes may respond with one or more response messages including advertisements of the type

specified by the discovery query message. The rendezvous node may cache the advertisements in the response messages. The rendezvous node and the other responding rendezvous node may provide route discovery for the resources advertised in the response message. The rendezvous nodes may include route information in the response message. The rendezvous node may forward the one or more response messages to the peer node."); and

wherein the server functionalities provide usable services in the communication network [0090] The peer-to-peer platform may further include a peer-to-peer services layer 140. This layer may provide capabilities that may not be absolutely necessary for a peer-to-peer network to operate but that may be desirable to provided added functionality beyond the core layer 120 in the peer-to-peer environment. The service layer 140 may deal with higher-level concepts such as search and indexing, directory, storage systems, file sharing, distributed file systems, resource aggregation and renting, protocol translation, authentication and PKI (public key infrastructure) systems. These services, which may make use of the protocols and building blocks provided by the core layer 120, may be useful by themselves but also may be included as components in an overall P2P system. Thus, services may include one or more services 144 provided by the peer-to-peer platform. These platform-provided services 144 may include indexing, searching and file sharing services, for example. The services layer 140 may provide hooks for supporting generic services (such as searching, sharing and added security) that are used in many P2P applications. Thus, services may also include one or more services 142 not provided as part of the peer-to-peer platform but rather provided by the

peer-to-peer platform community. These services 142 may be user-defined and may be provided, for example, to member peers in a peer group as a peer group service.")

Although Traversat teaches at para. [0083], "Peer monitoring 128 enables control of the behavior and activity of peers in a peer group and can be used to implement peer management functions including access control, priority setting, traffic metering (current utilization level), and bandwidth balancing (cost). " para. [0176], "Simple, low-cost information search and indexing using a content sharing service.", Traversat fails to teach wherein the server functionalities provide usable services in the communication network wherein a server functionality is selected for use by a client functionality using a state information comprising current utilization level of each of the server functionalities and the cost to use each of the server functionalities.

Periasamy teaches "wherein the server functionalities provide usable services in the communication network wherein a server functionality is selected for use by a client functionality using a state information comprising current utilization level of each of the server functionalities and the cost to use each of the server functionalities"(col. 9, line 27-54).

Thus, the manner of enhancing a plurality of communication components of Traversat was made part of the ordinary capabilities of one skilled in the art based upon the teaching of such improvement in Periasamy. Accordingly, one of ordinary skill in the art would have been capable of applying this known "improvement" technique in the same manner to the prior art communication components of Periasamy and the results would have been predictable to one of ordinary skill in the art, namely, one skilled in the

art would have readily recognized that applying the teachings of Periasamy would establish an optimal use of the network from the perspective of network efficiency and telecommunication cost.

Referring to claim 9,

Traversat teaches the communication network as claimed in Claim 8, wherein the communication network provides for a self-administration on the basis of the information ascertained by the search functions. (para. [0081] The peer-to-peer platform may provide mechanisms through which peers may discover each other, communicate with each other, and cooperate with each other to form peer groups. Peers may discover each other on the network to form transient or persistent relationships called peer groups. A peer group is a collection of peers connected by a network that share a common set of interests and that have agreed upon a common set of rules to publish, share and access any computer content (code, data, applications, or other collections of computer representable resources), and communicate among themselves. Peer groups may also be statically predefined. The peers in a peer group may cooperate to provide a common set of services. A peer group may be viewed as an abstract region of the network, and may act as a virtual subnet. The concept of a region virtualizes the notion of routers and firewalls, subdividing the network in a self-organizing fashion without respect to actual physical network boundaries. In one embodiment, peer groups implicitly define a region scope that may limit peer propagation requests. Conceptually, a peer group may be viewed as a virtual entity that speaks the set of peer group protocols.")

Referring to claim 14,

Traversat teaches the communication network as claimed in Claim 8, wherein the client functionality is designed to retrieve an authorization before using a server functionality (para. [0083] The core layer 120 provides core support for peer-to-peer services and applications. In a multi-platform, secure execution environment, the core mechanisms of peer groups, peer pipes and peer monitoring may be provided. Peer groups 122 may establish a set of peers and naming within a peer group with mechanisms to create policies for creation and deletion, membership, advertising and discovery of other peer groups and peer nodes, communication, security, and content sharing. Pipes provide virtual communication channels among peers. Messages sent in pipes may support transfer of data, content, and code in a protocol-independent manner, allowing a range of security, integrity, and privacy options. In one embodiment, messages may be structured with a markup language such as XML. Peer monitoring 128 enables control of the behavior and activity of peers in a peer group and can be used to implement peer management functions including access control, priority setting, traffic metering, and bandwidth balancing.")

Referring to claim 15,

Traversat teaches the communication network as claimed in Claim 14, wherein at least one server functionality is provided for managing the authorization ((para. [0083] The core layer 120 provides core support for peer-to-peer services and applications. In a multi-platform, secure execution environment, the core mechanisms of peer groups, peer pipes and peer monitoring may be provided. Peer groups 122 may establish a set

of peers and naming within a peer group with mechanisms to create policies for creation and deletion, membership, advertising and discovery of other peer groups and peer nodes, communication, security, and content sharing. Pipes provide virtual communication channels among peers. Messages sent in pipes may support transfer of data, content, and code in a protocol-independent manner, allowing a range of security, integrity, and privacy options. In one embodiment, messages may be structured with a markup language such as XML. Peer monitoring 128 enables control of the behavior and activity of peers in a peer group and can be used to implement peer management functions including access control, priority setting, traffic metering, and bandwidth balancing.")

Referring to claim 16,

Claim 16 is a claim to a method that is implemented in a communication network of claim 8. Therefore claim 16 is rejected for the reasons set forth for claim 8.

Referring to claim 17,

Claim 17 is a claim to a method that is implemented in a communication network of claim 9. Therefore claim 17 is rejected for the reasons set forth for claim 9.

Referring to claim 18,

Claim 18 is a claim to a method that is implemented in a communication network of claim 10. Therefore claim 18 is rejected for the reasons set forth for claim 10.

Referring to claim 22,

Claim 22 is a claim to a method that is implemented in a communication network of claim 14. Therefore claim 22 is rejected for the reasons set forth for claim 14.

Referring to claim 23,

Claim 23 is a claim to a method that is implemented in a communication network of claim 15. Therefore claim 23 is rejected for the reasons set forth for claim 15.

Referring to claim 24,

Traversat teaches the method as claimed in Claim 16, wherein the current address of all of the communication components are ascertained (para. [0028] Rendezvous nodes may be helpful to an isolated peer node by quickly seeding it with lots of information. In one embodiment, a network of rendezvous nodes may help to provide long-range discovery capabilities. A discovery message from a peer node may be forwarded from a first rendezvous node to a second, and so long, to discover peer nodes and/or peer groups that are "distant" on the network from the requesting peer node. In one embodiment, only rendezvous nodes may forward a discovery request to another rendezvous node. This restriction may limit the propagation of requests within the network. Each discovery query message may include a time-to-live (TTL) indicator. TTL's may also help limit the propagation of requests within the network. The TTL may indicate a length of time during which the resource advertisement is valid. The rendezvous nodes receiving the discovery query message may decrement the time-to-live indicator to reflect the current time-to-live. When the TTL expires, the discovery query message may be deleted or invalidated. Thus, Rendezvous nodes may help prevent exponential propagation of requests within the network by limiting forwarding and by using TTL's.")

Referring to claim 25,

Traversat teaches the method as claimed in Claim 16, wherein the server functionality of all of the communication components are retrieved [0029] In one embodiment, peer nodes may discover advertisements using a rendezvous node. For example, a peer node may broadcast discovery query message. Discovery query message may be formatted in accordance with a peer-to-peer platform discovery protocol. The discovery query message may include criteria specifying a particular type of network resource in which the peer node is interested. The discovery query message may include a security credential. The rendezvous nodes receiving the discovery query message may use the security credential to authenticate the sender. The discovery query message may also include the TTL as described above.")

Referring to claim 27,

Traversat teaches the communication network as claimed in Claim 8, wherein: each of the communication components searches for neighboring ones of the communication components and creates a servant list of the neighboring communication components; and each of the communication components maintains the current utilization level of each server functionality of the neighboring communication components in the servant list by performing a repeating search at timed intervals (para. [0083], "Peer monitoring 128 enables control of the behavior and activity of peers in a peer group and can be used to implement peer management functions including access control, priority setting, traffic metering (current utilization level), and bandwidth balancing (cost). " para. [0176], "Simple, low-cost information search and indexing using a content sharing service.").

Referring to claim 28,

Traversat teaches the communication network as claimed in Claim 27, wherein: one of the communication components performs a gateway search for a gateway among the neighboring communication components in the servant list;

a first of the neighboring communication components comprises a first gateway, and returns a first hit response to said one communication component (para.[0028]);

a second of the neighboring communication components does not comprise a gateway, and forwards the gateway search to additional neighboring communication components of the second neighboring communication component; and one of the additional neighboring communication components comprises a second gateway, and returns a second hit response to said one communication component (para.[0028]-[0035]).

Referring to claim 29,

Traversat teaches the communication network as claimed in Claim 28, wherein said one of the communication components chooses one of the gateways for use based on a respective number of available channels on each gateway and a respective propagation time for the first and second hit responses (para.[0028]).

Referring to claim 30,

Claim 30 is a claim to a method that is implemented in a communication network of claim 27. Therefore claim 30 is rejected for the reasons set forth for claim 27.

Referring to claim 31,

Claim 31 is a claim to a method that is implemented in a communication network of claim 28. Therefore claim 31 is rejected for the reasons set forth for claim 28.

Referring to claim 32,

Claim 32 is a claim to a method that is implemented in a communication network of claim 29. Therefore claim 32 is rejected for the reasons set forth for claim 29.

Conclusion

Examiner's note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ASHOK B. PATEL whose telephone number is (571)272-3972. The examiner can normally be reached on 6:30 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thu Nguyen can be reached on (571) 272-6769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ashok B. Patel/

Primary Examiner, Art Unit 2449